

17. (Original): A method of forming either one of a single layer and a multiple layer paint film on a target object for painting, wherein a powder coating (X2) according to claim 10 is used as a top coat paint.

18. (Original): A method of forming a paint film according to claim 17, wherein a base coat paint [I] is applied to said target object for painting, and a top coat paint [II] is applied thereon, and said powder coating (X2) is used as said top coat paint [II].

19. (Original): A method of forming a paint film according to claim 18, wherein said base coat paint [I] is a colored base coat paint, and said top coat paint [II] is a transparent top coat paint.

20. (New): A method of producing a powder coating according to claim 1, wherein the amount of said high boiling point organic solvent (C1) used is from 0.005 to 1 part by weight relative to 100 parts of solid matter in the powder coating raw materials solution.

#### REMARKS

By the present amendment, dependent claim 20 has been added. Support for the subject matter of claim 20 may be found in the present specification at, among other places, page 22, lines 2-6. Entry of this amendment is respectfully requested.

In the Action, claims 1-3, 5, 9-12 and 14-19 were rejected under 35 USC § 102(b) as being anticipated by the patent to Pettit. In making this rejection, it generally was alleged that the Pettit patent teaches a spray drying method which falls within the scope of the noted claims, citing the disclosure at line 45 of column 12 et seq. More particularly, it was asserted that the cited Pettit patent teaches the use of the same high boiling point solvent as disclosed in the subject specification, specifically citing ethylene glycol monoethylene acetate (actually ethylene glycol monoethyl ether acetate is disclosed) having a boiling point of 156°C.

It was acknowledged in the rejection that the Pettit patent does not specifically disclose that the composition according to the cited portion of the patent would yield a powder coating in which a percentage content of the high boiling point organic solvent (C1) is from 0.005 to 1% by weight as claimed. However, it then was asserted that the powder coating of the cited Pettit patent would be expected to possess the same property in terms of the high boiling point solvent as the claimed powder coating, that is, it was asserted that the coating of the cited patent would inherently have the same property as the coating as claimed. Reconsideration of this rejection in view of the following detailed comments is respectfully requested.

It is submitted that the Pettit patent does not teach or suggest the presently claimed

invention. More particularly, the Pettit patent discloses at column 13, lines 10-21 a method for producing a powder coating in which a liquid composition is sprayed toward a nylon cloth provided on one open end of a 30-gallon stainless steel drum that is open at both ends. However, the Pettit patent does not disclose detailed spray conditions and thus it is not possible to retest the Examples according to the Pettit patent.

As is disclosed in column 12, line 46 to column 13, line 9 of the Pettit patent, a liquid composition, which is sprayed in the Example 1 of the patent, contains 2.7% by weight of ethylene glycol monoethylether acetate (abbreviated as "EGEAc" hereinafter). As was mentioned above, this particular compound was specifically relied upon in the rejection.

In the Example 1 of the Pettit patent, a powder coating is produced by spraying the liquid composition having a composition, which is shown in column 12, bottom paragraph to column 13, first paragraph, and the composition then is dried in a vacuum oven. The liquid composition contains (1) a black mill base, (2) a yellow mill base, and (3) a green mill base. The specifics of each are set forth in the following:

(1) The black mill base contains a solvent mixture of toluene/ methylethyl ketone/ EGEAc. The solvent mixture contains 194.8 g of toluene, 366.3 g of methylethyl ketone, and 88.5 g of EGEAc. That is, the solvent mixture contained in the black mill base has a

mixing ratio of 30.0% by weight/ 56.4% by weight/13.6% by weight of toluene/ methylethyl ketone/ EGEAc.

(2) The yellow mill base also contains a solvent mixture of toluene/ methylethyl ketone/ EGEAc. The solvent mixture contains 168.5 g of toluene, 317.9 g of methylethyl ketone, and 75.3 g of EGEAc. That is, the solvent mixture contained in the yellow mill base has a mixing ratio of 30.0% by weight/ 56.6% by weight/13.4% by weight of toluene/ methylethyl ketone/ EGEAc.

(3) When the black mill base and the yellow mill base are compared, it is understood that the mixing ratios of the toluene/ methylethyl ketone/ EGEAc are equivalent. Therefore, although the detailed composition of a solvent mixture contained in the green mill base is not disclosed, it may be understood that the mixing ratio of toluene/ methylethyl ketone/ EGEAc in the green mill base is 30.0% by weight/ 56.6% by weight/13.4% by weight, similar to the black mill base and the yellow mill base.

As mentioned previously, the percentage of EGEAc relative to 100% by weight of solid matter in the liquid composition in the Example 1 based on the mixing ratio is 2.7% by weight. Similarly in the Example 2, the percentage of EGEAc relative to 100% by weight of solid matter in the liquid composition is 3.5% by weight. As explained above, the Pettit

patent does not disclose the detailed conditions for spraying. It thus must be assumed that the spraying was performed under normal temperature and normal pressure, that is, 20°C and atmospheric pressure.

Therefore, in the Examples of the Pettit patent, a liquid composition containing 2.7% by weight or 3.5% by weight of EGEAc is sprayed at 20°C and atmospheric pressure. In such a situation, almost of all EGEAc does not volatilize and will remain in the powder coating. The remaining EGEAc coagulates particles of the powder coating each other. In general, when the content of EGEAc in a powder coating exceeds 1% by weight, storage stability of the powder coating worsens and the particles of the powder coating coagulate in a short period.

The above statements that when a liquid composition is sprayed at normal temperature and normal pressure almost of all EGEAc does not volatilize, are based on a fact in that the saturated vapor pressure of EGEAc at 20° C is 0.27 kPa. In this latter regard, attention is directed to the attached copy of an information sheet for 2-ethoxyethyl acetate by the International Occupational Safety and Health Information Centre which shows the saturated vapor pressure of EGEAc. Moreover, the saturated vapor pressure at 20°C of water is 2.34 kPa. Compared with water, it is clear that EGEAc hardly volatilizes. For further reference, the saturated vapor pressure at 20°C of acetone, methyl

ethyl ketone, and toluene is respectively 24.6 kPa, 10 kPa, and 2.9 kPa.

In summary, it is evident that the powder coating of the Pettit patent contains more than 1% by weight of EGEAc, and does not contains 0.005 to 1% by weight of EGEAc as the powder coating of the presently claimed invention. Thus, the evidence shows that the coating according to the Pettit patent does not in fact have the property of the powder coating as claimed.

Moreover, although the detailed conditions are not disclosed, the Pettit patent discloses in column 13, lines 22-26 that the powder, which is produced by spraying, is then placed into a vacuum oven (that is, the powder is subjected to a secondary drying process). In order to volatilize the EGEAc in such the secondary drying process, it is necessary to increase the degree of vacuum or temperature. In addition, when a powder coating containing much EGEAc is subjected to the secondary drying process to dry the powder coating, particles of the powder coating may coagulate with each other. According to the temperature in the secondary drying process, the resin contained in the powder coating may be gelatinous.

These problems can be solved by volatilizing almost of all EGEAc in spraying or decreasing the content of EGEAc in the liquid composition, specifically by adjusting the

content of EGEAc in the liquid composition to a range from 0.005 to 1 part by weight relative to 100 parts of solid matter in the powder coating raw materials solution. Since the powder coating of the present invention contains 0.005 to 1% by weight of the high boiling point organic solvent (C1), these problems do not occur.

For the reasons stated above, withdrawal of the rejection under 35 U.S.C. § 102(b) and allowance of claims 1-3, 5, 9-12 and 14-19 over the cited Pettit patent are respectfully requested.

Claims 1-19 were rejected under 35 USC § 102(e) as being anticipated by, or alternatively, under 35 USC § 103(a) as being unpatentable over, the patent to Okada et al. In making this rejection, it was indicated that the rejection can be overcome by submission of an English language translation of the priority document. Reconsideration of this rejection in view of the following comments is requested.

While it apparently is correct that the subject rejection can be overcome by the submission of an English language translation of the priority document, it is believed that such is not necessary. The cited Okada et al patent has an effective filing date of April 9, 2001, for the purposes of 35 USC § 102(e). However, the subject application has a PCT effective filing date of March 29, 2001, which is prior to the above filing date. Thus, since

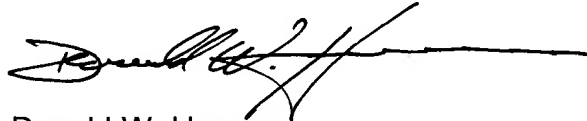
the PCT filing date is the effective filing date of the subject application, the Okada et al patent is not art to the PCT application under the provisions of the patent statutes. Accordingly, withdrawal of the rejection under 35 U.S.C. §102(e) or §103(a) and allowance of claim 1 through 8 over the cited patents are respectfully requested.

In view of the foregoing, it is submitted that the subject application is now in condition for allowance and early notice to that effect is earnestly solicited.

In the event this paper is not timely filed, the undersigned hereby petitions for an appropriate extension of time. The fee for this extension may be charged to Deposit Account No. 01-2340, along with any other additional fees which may be required with respect to this paper.

Respectfully submitted,

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PATENT TRADEMARK OFFICE

Enclosure: ICSC 0364-2-ETHOXYETHYL ACETATE



## ICSC 0364 - 2-ETHOXYETHYL ACETATE

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International Labour Organization

International Occupational Safety and Health Information Centre (CIS)


[\[List of Chemicals\]](#)
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<b>2-ETHOXYETHYL ACETATE</b>		<b>ICSC: 0364</b>
		<b>November 2003</b>
Ethylene glycol monoethyl ether acetate 2-Ethoxyethanol acetate Acetic acid, 2-ethoxyethyl ester Cellosolve acetate Ethyl glycol acetate		
<b>CAS No:</b> 111-15-9 <b>RTECS No:</b> KK8225000 <b>UN No:</b> 1172 <b>EC No:</b> 607-037-00-7	$C_8H_{12}O_3$ / $CH_3COOCH_2CH_2OCH_2CH_3$ <b>Molecular mass:</b> 132.2	

TYPES OF HAZARD / EXPOSURE	ACUTE HAZARDS / SYMPTOMS	PREVENTION	FIRE FIGHTING
<b>FIRE</b>	Flammable.	NO open flames, NO sparks, and NO smoking.	Powder, alcohol-resistant foam, water spray, carbon dioxide.
<b>EXPLOSION</b>	Above 51.1° C explosive vapour/air mixtures may be formed.	Above 51.1° C use a closed system, ventilation, and explosion-proof electrical equipment.	In case of fire: keep drums, etc., cool by spraying with water.
<b>EXPOSURE</b>		<b>AVOID ALL CONTACT</b>	
<b>Inhalation</b>	Dizziness. Drowsiness. Headache. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
<b>Skin</b>	MAY BE ABSORBED! Dry skin. (Further see Inhalation).	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention.
<b>Eyes</b>	Redness.	Safety goggles, or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
<b>Ingestion</b>	Nausea. Vomiting. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Refer for medical attention.

SPILLAGE DISPOSAL	PACKAGING & LABELLING
Ventilation. Remove all ignition sources. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT let this chemical enter the environment. (Extra personal protection: filter respirator for organic gases and vapours.)	<b>T Symbol</b> <b>R:</b> 60-61-20/21/22 <b>S:</b> 53-45 <b>Note:</b> E <b>UN Hazard Class:</b> 3 <b>UN Pack Group:</b> III

## ICSC 0364 - 2-ETHOXYETHYL ACETATE





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EMERGENCY RESPONSE	STORAGE
Transport Emergency Card: TEC (R)-30S1172 NFPA Code: H1; F2; R	Fireproof. Separated from strong oxidants, strong bases, strong acids. Keep in the dark.

IMPORTANT DATA	
<b>Physical State; Appearance</b> COLOURLESS LIQUID, WITH CHARACTERISTIC ODOUR.	<b>Routes of exposure</b> The substance can be absorbed into the body by inhalation of its vapour, through the skin and by ingestion.
<b>Chemical dangers</b> The substance can presumably form explosive peroxides. Reacts with strong acids, strong bases, strong oxidants.	<b>Inhalation risk</b> A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20° C.
<b>Occupational exposure limits</b> TLV: 5 ppm, 27 mg/m <sup>3</sup> , as TWA; (skin); (ACGIH 2003). MAK: 5 ppm, 27 mg/m <sup>3</sup> ; H; Peak limitation category: II(B); Pregnancy risk group: B; (DFG 2003).	<b>Effects of short-term exposure</b> The vapour is mildly irritating to the eyes. The substance may cause effects on the blood, resulting in lesions of blood cells and kidney impairment at high levels. The substance may cause effects on the central nervous system. Exposure far above the OEL may result in unconsciousness.
	<b>Effects of long-term or repeated exposure</b> The liquid defats the skin. The substance may have effects on the blood, resulting in lesions of blood cells, anaemia and kidney impairment. May cause toxicity to human reproduction or development.

PHYSICAL PROPERTIES	ENVIRONMENTAL DATA
Boiling point: 156° C Melting point: -62° C Relative density (water = 1): 0.97 (at 20° C) Solubility in water, g/100 ml at 20° C: 23 Vapour pressure, kPa at 20° C: 0.27 Relative vapour density (air = 1): 4.7 Relative density of the vapour/air-mixture at 20° C (air = 1): 1.01 Flash point: 51.1° C c.c. Auto-ignition temperature: 379° C Explosive limits, vol% in air: 1.3-14 Octanol/water partition coefficient as log Pow: 0.24	The substance is harmful to aquatic organisms.

NOTES
Check for peroxides prior to distillation; eliminate if found.

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Updated by AS. Approved by EC. Last update: 23.01.2004

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